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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,107	05/14/2001	Fujio Tanaka	1217-010689	8727

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EXAMINER
LANGEL, WAYNE A

ART UNIT	PAPER NUMBER
1754	2

DATE MAILED: 04/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 855107	Applicant(s) Tanaka et al
	Examiner Lange	Group Art Unit 1754

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-26 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-26 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)–(d)

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)–(d).

☒ All ☐ Some* ☐ None of the:

☒ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

☒ Information Disclosure Statement(s), PTO–1449, Paper No(s). 4

☐ Interview Summary, PTO–413

☒ Notice of Reference(s) Cited, PTO–892

☐ Notice of Informal Patent Application, PTO–152

☐ Notice of Draftsperson's Patent Drawing Review, PTO–948

☐ Other _____

Office Action Summary

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, 5, 8-12, 18 and 20-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ledon et al. '947 in view of Sugihara et al. '179 or Kajiwara et al. '487 or Kajiwara et al. '238. Ledon et al. '947 discloses a process for preparing an ultrapure hydrogen peroxide solution, comprising at least one sequence which includes successively passing a hydrogen peroxide solution to be purified through at least two beds of cation exchange adsorbents and at least two beds of anion exchange adsorbents according to the sequence wherein the solution was first passed through an anion exchange resin, followed by passage through a cation exchange resin, followed by passage through an anion exchange resin, and then followed again by passage through a cation exchange resin. (See column 2, lines 30-62.) Ledon et al. '947 discloses from column 3, line 50 - column 4, line 34 that the anion exchange resin is one which has been exchanged in the bicarbonate form. The difference between the process

disclosed by Ledon et al. '947, and that recited in claims 1, 4, 5, 8-12, 18 and 20-26, is that Ledon et al. '947 does not specifically disclose that the cation exchange resin should be of the hydrogen type. Kajiwara et al. '238, Kajiwara et al. '487 and Sugihara et al. '179 all disclose methods for purifying aqueous hydrogen peroxide solutions, wherein the solution is passed through a strongly acidic cation exchange resin in the hydrogen form. (See the Abstract of Kajiwara et al. '238; column 2, lines 14-24 of Kajiwara et al. '487; and the paragraph bridging columns 4 and 5 of Sugihara et al. '179.) It would be prima facie obvious from Kajiwara et al. '238, Kajiwara et al. '487 or Sugihara et al. '179 to employ a hydrogen cation exchange resin as the cation exchange resin in the process of Ledon et al. '947, since Ledon et al. '947 would imply or suggest that any cation exchange resin can be employed, and Sugihara et al. '179, Kajiwara et al. '487 and Kajiwara et al. '238 all disclose the benefits of employing a hydrogen cation exchange resin for the purification of hydrogen peroxide solutions. There is no evidence on record of unexpected results which would emanate from the use of hydrogen cation exchange resins, as opposed to other cation exchange resins, as the cation exchange resins in the process of Ledon et al. '947. Regarding claims 9-12, it is conventional in and of itself to purify aqueous hydrogen peroxide solutions by adding a flocculating agent such as phosphoric acid,

following by filtering with a fine filter. It would be further obvious to modify the process of Ledon et al. '947 with such a conventional step.

Claims 3, 7, 15, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara et al. '179 or Kajiwara et al. '487 or Kajiwara et al. '238 as applied to claim 1 above, and further in view of either Saito et al. or Nishide et al. It would be further obvious from either Saito et al. or Nishide et al. to contact the aqueous hydrogen peroxide solution of Ledon et al. '947 with an adsorption resin before contacting with the hydrogen cation exchange resin, since Saito et al. and Nishide et al. both disclose the advantages of purifying a hydrogen peroxide solution by passage through an adsorption resin (see column 2, line 45 - column 3, line 38 of Nishide et al.; and column 1, line 13 - column 2, line 56 of Saito et al.), and one of ordinary skill in the art would expect that the hydrogen peroxide solution of Ledon et al. '947 could be more completely purified when first passing it through an adsorption resin. Regarding claim 7, it is conventional in and of itself to regenerate an adsorption resin by treating it with an alcohol aqueous solution and then washing with ultrapure water. It would be further obvious to modify the process of Ledon et al. '947 with such a conventional step.

disclose a process for purifying an aqueous hydrogen peroxide solution by contacting it with an anion exchange resin in the fluoride form. Minamikawa et al. go on to state that it is possible to obtain a purified aqueous hydrogen peroxide solution having a still higher purity when the aqueous hydrogen peroxide solution is brought into contact with a strongly cation exchange resin having a sulfonic acid group and an anion exchange resin in the bicarbonate form in combination with the anion exchange resin in the fluoride form and that when this process is used, the order of the columns through which the aqueous hydrogen peroxide solution is passed can be selected as desired and is not particularly limited. (See the paragraph bridging columns 6 and 7.) Minamikawa et al. specifically disclose in the sentence bridging columns 6 and 7 that the aqueous hydrogen peroxide solution may be passed through the column packed with the strongly acidic cation exchange resin having a sulfonic acid group, the column packed with the anion exchange resin in the fluoride form, and the column packed with the anion exchange resin in the bicarbonate form, in this order. The difference between the process disclosed by Minamikawa et al., and that recited in applicant's claims 2, 6, 14 and 16, is that Minamikawa et al. do not specifically disclose that the hydrogen peroxide solution should be passed through a hydrogen cation exchange resin after being successively passed through a hydrogen cation

exchange resin, a fluoride anion exchange resin and the bicarbonate anion exchange resin. It would be prima facie obvious to pass the hydrogen peroxide solution through a hydrogen cation exchange resin after passage through the anion exchange resin in the bicarbonate form disclosed in the sequence bridging columns 6 and 7 of Minamikawa et al., since Minamikawa et al. disclose at column 7, lines 23-27 that the anion exchange resin in the fluoride form may be used in combination with conventional ion exchange resins, and specifically teaches at column 6, lines 53-60 that a hydrogen peroxide solution of still higher purity may be obtained when including a strongly cation exchange resin as one of the ion exchange resins. It would be within the skill of one of ordinary skill in the art to determine suitable orders of sequence of such ion exchange resins. There is no evidence on record of unexpected results which would emanate from the specific order recited in applicant's claim 2, and any of the other sequences disclosed by Minamikawa et al. in the paragraph bridging columns 6 and 7.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minamikawa et al. as applied to claim 2 above, and further in view of either Saito et al. or Nishide et al. Saito et al. and Nishide et al. are relied upon as discussed hereinbefore. It would be further obvious from either Saito et al. or Nishide et al. to contact the hydrogen peroxide solution

of Minamikawa et al. with an adsorption resin before contacting it with the hydrogen cation exchange resin, since Saito et al. and Nishide et al. both disclose the advantages of purifying a hydrogen peroxide solution by contacting it with an adsorbent resin, and Minamikawa et al. suggest in the paragraph bridging columns 6 and 7 that a higher purify hydrogen peroxide solution may be obtained when employing other purification processes in addition to the use of the fluoride ion exchange resin.

Claims 1-26 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of the word "type" renders the scope of the claims vague and indefinite. Also, in claim 9, the recitation of "fine filter" is indefinite, since it is not clear what the pore size would have to be in order for the filter to be "fine". Also in claim 9, the step of "filtrating a solid impurities" is ungrammatical, and therefore indefinite.

The other references are made of record for disclosing various processes for purifying aqueous hydrogen peroxide solutions by passing the solutions through various types and sequences of ion exchange resins, including both cation and anion exchange resins.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A.

Langel whose telephone number is (703) 308-0248. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (703) 308-3837. The fax phone number for this Group is (703) 305-7718.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

WAL:cdc
March 26, 2003

Wayne A. Langel
WAYNE A. LANGEL
PRIMARY EXAMINER